

PATENT APPLICATION
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Applicant: Watkins, Jeffry D.

Group Art Unit: 1644

Serial No.: 10/553,938

Examiner: Ron Schwadron, Ph.D.

Application Date: October 21, 2005

Confirmation No.: 8652

For: CD20 Binding Molecules

Docket No.: X-16760A

DECLARATION OF APPLICANT UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Jeffry D. Watkins, hereby declare the following:

A duly executed Declaration and Power of Attorney was filed on October 21, 2005 in the above-referenced patent application, declaring that Julian Davies, David M. Marquis, Barrett W. Allan, Brian Ondek, and myself are the original and first inventors of the subject matter which is claimed and for which a patent is sought in the above-referenced patent application, and the same is true and correct.

I understand that a Business Wire article entitled "Applied Molecular Evolution Advances Optimized Versions of anti-TNF alpha and anti-CD20 Monoclonal Antibody Therapeutic Candidates", dated January 3, 2003 (hereinafter, the "Business Wire reference") has been cited by the Examiner in the above-referenced patent application as anticipating the pending claims of the same.

I have also read and understand the Business Wire reference. In relevant part, the Business Wire reference describes, in entirely functional terms, a CD20 binding antibody,

AME-133, reported to have improved functional attributes as compared to Rituxan®, a therapeutic CD20 binding antibody known and commercialized at the time of the publication of the Business Wire reference.

I also understand that the above-referenced patent application presently claims compositions comprising a CD20 binding molecule (e.g., antibodies or CD20 binding fragment thereof) comprising a set of three structurally defined heavy chain CDRs and a set of three structurally defined light chain CDRs.

The invention presently claimed by the above-referenced patent application was based on detailed experiments involving antibody optimization which resulted in functionally improved CD20 binding antibodies comprising the CDRs defined by specific amino acid sequences.

This declaration is to establish the actual reduction to practice in the United States of the invention claimed in the above-referenced patent application, at a day prior to January 3, 2003, which is the effective date of the Business Wire reference.

At the relevant time of the actual reduction to practice of the invention claimed by the above-referenced application, I held the position of Chief Scientific Officer at Applied Molecular Evolution (AME), Inc.

The invention disclosed and claimed in the instant patent application was reduced to practice (in the United States) prior to January 3, 2003, as is evidenced by the attached Exhibits, which are more fully described below.

To the best of my knowledge and belief, the claimed invention was not sold or in public use in the United States for one year prior to the date of the above application.

To the best of my knowledge and belief, the claimed invention was not patented nor described in a printed publication in such a manner that a person of ordinary skill in the field of the invention would have been able to make or use the claimed invention, without undue experimentation, prior to the date of the above application.

The attached Exhibits were generated and/or prepared by AME employees, including Christine Hawelka and Ying Nie, who are not inventors of the claimed subject matter, while recording and/or documenting work conducted (in the United States) under the direction and supervision of myself and/or the other inventors listed on the Declaration and Power of Attorney filed on October 21, 2005.

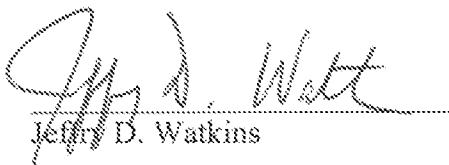
The following documents are submitted as evidence establishing the date of completion of the claimed invention of the above-referenced application as being prior to January 3, 2003.

- a. Copies of sequence files generated with Sequencher™ (Gene Codes Corp.) on October 10, 2002 showing sequences encoding heavy chain variable regions and light chain variable regions of CD20 binding molecules, including those of AME 33 (Exhibits 1-4).
- b. Copies of various pages from Christine Hawelka's AME Research Notebook #585, dated from October 9, 2002 to October 17, 2002 (Exhibit 5).
- c. Copies of the cover page and page 19 (dated November 4, 2002) from Ying Nie's AME Research Notebook #613 (Exhibit 6).

The documents submitted as Exhibits 1-6 clearly demonstrate that the presently claimed invention was reduced to practice (in the United States) on or before October 10, 2002.

The documents submitted as Exhibits 1-6 clearly demonstrate that the presently claimed invention was reduced to practice (in the United States) prior to January 3, 2003, the effective date of the Business Wire reference.

I further declare that all statements made herein of my own knowledge are true, that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code, and that such willfully false statements may jeopardize the validity of this application or any patent issuing thereon.



Jeffrey D. Watkins

June 29, 2011
Date

DESCRIPTION OF THE EXHIBITS

Exhibit 1

A copy of an electronic sequence file generated with Sequencher™ software (Gene Codes Corp.) on October 10, 2002 showing the sequences (both nucleotide and amino acid sequences) obtained from DNA sequencing of the DNA encoding the heavy chain variable regions of various CD20 binding molecules. In particular, the nucleotide sequence encoding the heavy chain variable region of the CD20 binding molecule AME 33 is shown as the fourth nucleotide sequence down from the top of the page (i.e., 1_DM.33.530_F04_12 abl). Directly below the fourth DNA sequence is the amino acid sequence (provided in conventional single-letter code) of the heavy chain variable region of the CD20 binding molecule AME 33.

Exhibit 2

A copy of an electronic sequence file generated with Sequencher™ software (Gene Codes Corp.) on October 10, 2002 showing the sequences (both nucleotide and amino acid sequences) obtained from DNA sequencing of the DNA encoding the light chain variable regions of various CD20 binding molecules. In particular, the nucleotide sequence encoding the light chain variable region of the CD20 binding molecule AME 33 is shown as the fourth nucleotide sequence down from the top of the page (i.e., 1_DM.33.355_F05_11 abl). Directly below the fourth DNA sequence is the amino acid sequence (provided in conventional single-letter code) of the light chain variable region of the CD20 binding molecule AME 33.

Exhibit 3

A marked up version of Exhibit 1 has been provided here as Exhibit 3 for the Examiner's convenience.

The amino acid sequences of CDRH1, 2, and 3 of the CD20 binding molecule AME 33 are underlined at page 2, 3, 4 and 5, respectively, of Exhibit 3. The underlined amino acid sequences of CDRH1, 2, and 3 correspond exactly to SEQ ID NOS: 25, 39, and 57, respectively, of the above-referenced application. Importantly, SEQ ID NOS: 25, 39, and 57 are all recited elements in present claim 34.

Furthermore, in Exhibit 3, the amino acid sequence of the entire heavy chain variable region of the CD20 binding molecule AME 33 has been enclosed by brackets (starting at page 1 and ending at page 5). The entire heavy chain variable region of the CD20 binding molecule AME 33 (shown enclosed in brackets) corresponds exactly to SEQ ID NO: 61 of the above-referenced application. Importantly, SEQ ID NO:61 is a recited element in present claim 48.

Exhibit 4

A marked-up version of Exhibit 2 has been provided here as Exhibit 4 for the Examiner's convenience.

The amino acid sequences of CDRL1, 2, and 3 of the CD20 binding molecule AME 33 are underlined at page 2, 3, and 4, respectively, of Exhibit 4. The underlined amino acid sequences of CDRL1, 2, and 3 correspond exactly to SEQ ID NOs: 5, 13, and 19, respectively, of the above-referenced application. Importantly, SEQ ID NOs: 5, 13, and 19 are all recited elements in present claim 34.

Furthermore, in Exhibit 4, the amino acid sequence of the entire light chain variable region of the CD20 binding molecule AME 33 has been enclosed by brackets (starting at page 1 and ending at page 5). The entire light chain variable region of the CD20 binding molecule AME 33 (shown enclosed in brackets) corresponds exactly to SEQ ID NO:59 of the above-referenced application. Importantly, SEQ ID NO:59 is a recited element in present claim 48.

Exhibit 5

A copy of the cover page, table of contents page, and various other pages from Christine Hawelka's AME Research Notebook #585, dated from October 9, 2002 to October 17, 2002, are provided as Exhibit 5. Throughout these research notebook pages, references to "33", or variations thereof (such as "#33", "33 F1", etc.), are references to the CD20 binding molecule referred to as AME 33 in the above-referenced application.

Page 66 of Christine Hawelka's AME Research Notebook #585, indicates, *inter alia*, that David Marquis ("Dave") set up and finished high-titer ("HT") and ("single-strand") preps of various clones ("31-40"), including clone 33, on October 8, 2002 and October 9, 2002, respectively.

Page 68 of Christine Hawelka's AME Research Notebook #585, describes, *inter alia*, a fixed Ramos cell ELISA binding assay with various CD20 binding molecules, including Fab 33. It is noted on this notebook page, dated October 10, 2002, that “#32, 33, 35, [and] 40 look the best, so will investigate them further”. For the avoidance of doubt, the references to “33” or “reference is referred to as AME 33, Fab AME 33 or the like in the present application.

Page 73 of Christine Hawelka's AME Research Notebook #585, indicates, *inter alia*, a fixed Ramos cell ELISA binding assay with various CD20 binding molecules, including the Fab AME 33. The page, dated October 17, 2002, notes that after 18 hours, “Brian's 4H5 as well as 33 [and] 40 staying on pretty well”.

Exhibit 6

A copy of the cover page and page 19 Ying Nie's AME Research Notebook #613 are provided as Exhibit 6. Page 19 of Ying Nie's AME Research Notebook #613, dated November 4, 2002, documents the purification of single-strand DNA (“ssDNA”) encoding the light chain variable region of clone 33 (“VL33”) and the heavy chain variable region of clone 33 (“VH33”). “VL33” and “VH33” on page 19 of this notebook are refer to DNA molecules encoding the light chain variable region and heavy chain variable region, respectively, of the CD20 binding molecule referred to as AME 33 in the above-referenced application.

Sequencher (tm) ContigVR
"+'s 1010 combi 10-10-02.SPF"

1_D10_VH	#1	GTGAAACAAAGCACTTATGGCACTTACCGTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCTGGAGCA
1_DM.31.530_H04_16.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCGTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.32.530_H04_14.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCGTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.33.530_F04_12.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.34.530_E04_10.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.35.530_D04_08.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.38.530_C04_06.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.39.530_E04_04.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A
1_DM.40.530_A04_02.ab1	#1	GTGAAACAAAGCACTTATGGCACTTACCTGTGCCAAAGCCAGGTGGAGCTGGGAGCA
	V	K Q S T I A L A L P L R F T P V A K A E V Q L V Q S G A

EXHIBIT 1

PAGE 1

ContigVH
Sequencher (tm) "4'S 1D10 combi 10-10-02.SPF"

43 1D10 VH
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.31.530_H04_15.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.32.530_H04_14.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G R T P T S Y N M H W V R Q
43 1_DM.33.530_H04_12.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G Y R T P T S Y N M H W V R Q
43 1_DM.34.530_H04_10.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G R T P T S Y N M H W V R Q
43 1_DM.35.530_H04_08.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G R T P T S Y N M H W V R Q
43 1_DM.36.530_H04_06.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.39.530_H04_04.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.40.530_H04_02.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G R T P T S Y N M H W V R Q

#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGGCCAG
E V K R P G E S L R I S C K G S G R T P T S Y N M H W V R Q

EXHIBIT 1

PAGE 2

Sequencer (tm) ContigVH
"4's 1D10 combi 10-10-02.SPF"

EXHIBIT 1

PAGE 3

ContigView
Sequencher (tm) " + 'S 1D10 combi 10-10-02.SPF "

43 ID10 VH #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCAACCCCATGTTACCTGAGATCG
43 1_DM_31_530_F04_16.ab1 #271 T S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S
43 1_DM_32_530_G04_14.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCAACCCCATGTTACCTGAGATCG
43 1_DM_33_530_F04_13.ab1 #271 T S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S
43 1_DM_34_530_E04_10.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_35_530_F04_08.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_36_530_F04_06.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_39_530_F04_04.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_40_530_A04_02.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
#271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
I S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S
#271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
I S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S

EXHIBIT 1

PAGE 4

ContigVII

Sequencher (tm) "4'S 1D10 combi 10-10-02.SPF"

1D10 VR #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 1.DM.31.530.H04_15.ab1 #361 T Y V G G D W T F D V W G K G T T V T V S S A S T K S
 T Y V G G D W Q F D V W G K G T T V T V S S A S T K S
 1.DM.32.530.G04_14.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 T Y V G G D W Q F D V W G K G T T V T V S S A S T K S
 1.DM.33.530.F04_12.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 T Y V G G D W Q F D V W G K G T T V T V S S A S T K S
 1.DM.34.530.E04_10.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 T Y V G G D W T F D V W G K G T T V T V S S A S T K S
 1.DM.35.530.D04_08.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 T Y V G G D W Q F D V W G K G T T V T V S S A S T K S
 1.DM.38.530.X04_06.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 Y Y V G G D W Q F D V W G K G T T V T V S S A S T K S
 1.DM.39.530.B04_04.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 T Y V G G D W T F D V W G K G T T V T V S S A S T K S
 1.DM.40.530.A04_02.ab1 #361 ACTTACGTTGGGGTCACTGGCTGACTTCACTGCTGGGAAAGGGACCCGGTCACCGTCTGCTCAGGCTCCACCAAGGGCC
 T Y V G G D W Q F D V W G K G T T V T V S S A S T K S
 *** * ***

EXHIBIT 1

PAGE 5

ContigVI
Sequencher (tm) *+*S 1D10 combi 10-10-02.SPF*

#1 1D10.vL

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

EXHIBIT 2

PAGE 1

Contig#,
Sequencer (tm) " + 'S 1D10 combi 10-10-02 .SPP"

43 1D10.vL
43 1.DM.31_355_R05_15.ab1
43 1.DM.32_355_S05_13.ab1
43 1.DM.33_355_F05_11.ab1
43 1.DM.34_355_E05_09.ab1
43 1.DM.35_355_D05_07.ab1
43 1.DM.38_355_C05_05.ab1
43 1.DM.39_355_B05_03.ab1
43 1.DM.40_355_A05_01.ab1
#88 CTCGCTTTCCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P

EXHIBIT 2

PAGE 2

ContigVL
Sequencher (tm) "4'S 1D10 combi 10-10-02, SPP"

1D10.vtl
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S R L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A R S N L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S R L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A R S A L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S R L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S M L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S N L A S G I P D R F S G S G S G T
*** ***
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S N L A S G I P D R F S G S G S G T

EXHIBIT 2

PAGE 3

ContigVI
Sequencher (tm) "45 1D10 combi 10-10-02.spp"

1D10.vL

#263 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCAAGTTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCATTG
D F T L T I S R L B P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

EXHIBIT 2

PAGE 4

ContigV,
Sequencher (tm) "4'S 1D10 combi 10-10-02.SPF"

431.ind.vi
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAAACGAACTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P

EXHIBIT 2

PAGE 5

ContigVII
Sequencer (tm) *->S 1D10 combi 10-10-02.SPF*

1D10 VH

#1 CTGAAACAAAGCACTATGGCAGCTTACCGTTACGGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_31_530_B04_16.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACGGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_32_530_G04_14.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_33_530_E04_12.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_34_530_E04_10.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_35_530_D04_08.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_38_530_C04_06.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_39_530_B04_04.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

* 1_DM_40_530_A04_02.ab1

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

.....

#1 GTGAAACAAAGCACTATGGCAGCTTACCGTTACCTGCGAAAGCGAGGTGCACTGTGAGCA
V K Q S T I A L L P L L F P T P V A R A E V Q L V Q S G A

EXHIBIT 3

PAGE 1

ContigVH
Sequencer (tm) "4'S 1D10 combi 10-10-02.SPF"

43 1D10 VH
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACAGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.31.530_H04_15.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.32.530_G04_14.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.33.530_E04_12.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.34.530_E04_10.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.35.530_E04_08.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.36.530_C04_06.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.39.530_E04_04.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q
43 1_DM.40.530_A04_02.ab1
#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q

#91 GAGGTGAAAGCCCCGGGACTCTGAAAGATCTCCGTAGGTTCTGGTACACATTACCGTTACATGCACTGGGTGGCCAG
E V K R P G E S L R I S C K G S G Y T P T S Y N M H W V R Q

EXHIBIT 3

PAGE 2

ContigVH
Sequencer (tm) "4' S 1D10 combi 10-10-02.SPF"

1D10 VH #181 ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.31.530_B04_16.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.32.530_G04_14.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.33.530_F04_12.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.34.530_B04_10.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.35.530_B04_08.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.36.530_C04_06.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.39.530_B04_04.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
1.DM.40.530_B04_02.ab1 #181 N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
ATGCCCGGAAAGGCTGAGTGGATGGCTATTTCCTGAAAGGATACTTCACATCAGAAGTCAACTCCAGGTCA
N P G R G L E W M G A I Y P L R N G D T S Y N Q K F K L Q V T
** ** **

EXHIBIT 3

PAGE 3

ContigView
Sequencher (tm) " + 'S 1D10 combi 10-10-02.SPF "

43 ID10 VH #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCAACCCCATGTTACCTGAGATCG
43 1_DM_31_530_F04_16.ab1 #271 T S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S
43 1_DM_32_530_G04_14.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCAACCCCATGTTACCTGAGATCG
43 1_DM_33_530_F04_13.ab1 #271 T S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S
43 1_DM_34_530_E04_10.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_35_530_F04_08.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_36_530_F04_06.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_39_530_F04_04.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
43 1_DM_40_530_A04_02.ab1 #271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
#271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
I S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S
#271 ATCTCAGCCGACAGCCATCAACACCGCTACCTGCACTGCACTGAGACCCATGTTACCTGAGATCG
I S A D K S I S T A Y L Q W S S L K A S D T A M Y Y C A R S

EXHIBIT 3

PAGE 4

Specie: *Scirpus* (spp.)
Contig: 111
Chr: 111
Start: 10-10-03
End: 10-10-03
SPE: 111

1D10_VH	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.31.530.D04_15.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.32.530.D04_14.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.33.530.D04_12.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.34.530.D04_10.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.35.530.D04_08.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.38.530.D04_06.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.39.530.D04_04.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC
1.DM.40.530.D04_02.ab1	#361	ACTTACGGGGGGGACTGACTGCTTCAAGTCTGGGAAAGGACCAAGGTCACCCCTCAGCCACCAAGGGCC

ContigVI
Sequencher (tm) *+*S 1D10 combi 10-10-02.SPF*

#1 1D10.vL

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

#1 ATGAAAGCACTTACCATGCACTTACCGCTTTTCACTCCGTTGGCCAAAGGGAAATTGGTGGACCGAGTCAGGACCC

#1 M K Q S T I A L L P L L F T P V A K A E I V L T Q S P G T

EXHIBIT 4

PAGE 1

Contig#,
Sequencer (tm) " + 'S 1D10 combi 10-10-02 .SPP"

43 1D10.vL
43 1.DM.31_355_R05_15.ab1
43 1.DM.32_355_S05_13.ab1
43 1.DM.33_355_F05_11.ab1
43 1.DM.34_355_E05_09.ab1
43 1.DM.35_355_D05_07.ab1
43 1.DM.38_355_C05_05.ab1
43 1.DM.39_355_B05_03.ab1
43 1.DM.40_355_A05_01.ab1
#88 CTCGCTTTCCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P
#88 CTGCTCTGGCTCCAGGGAAAGGCACCTCTCTGCAAGGCACTGACCTGACCTGACGGACACT
L S L S P G E R A T L S C R A S S S V P Y I R W Y Q Q R P

EXHIBIT 4

PAGE 2

ContigVL
Sequencher (tm) "4'S 1D10 combi 10-10-02, SPP"

1D10.vtl
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S R L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A R S N L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S A L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S R L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A R S A L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S A L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S N L A S G I P D R F S G S G S G T
#175 GGCAGGCTCCAGGCTCTCATCTTGCACATCCACCCAGGTTGGCCAGAGGTTGGCCAGGCTGGGACA
G Q A P R L I I Y A T S N L A S G I P D R F S G S G S G T
*** ***

EXHIBIT 4

PAGE 3

ContigVI
Sequencher (tm) "45 1D10 combi 10-10-02.spp"

1D10.vL

#263 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCAAGTTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCATTG
D F T L T I S R L B P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

#262 GACTTCACTCTACCATCAGCAGACTGGAGCTTGCACTGTAGCAGCTGGCTGAGTAACCCACCCACCCATTG
D F T L T I S R L E P E D F A V V V C Q Q W L S N P P T F

EXHIBIT 4

PAGE 4

ContigV,
Sequencher (tm) " + \$ 1D10 combi 10-10-02.SPF "

421.DM.01.001.ab1
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P
#349 GGCAGGGACCAAGCTGGAGATCAACGAACTCTGGCTGACCATCTGTCTC
G Q G T K L E I K R P V A A P S V P

EXHIBIT 4

PAGE 5

EXHIBIT 5
P.28-97 CD-20 8-22-02 to 11-7-02

NOTEBOOK NO. 585
ISSUED TO Chris Hawelka
ON 6-11 **20** 02
DEPARTMENT _____
RETURNED 20 _____

SCIENTIFIC NOTEBOOK COMPANY
2831 LAWRENCE AVENUE
STEVENSVILLE, MICHIGAN 49127
(800) 537-3028 - <http://www.senco.com>

Table of Contents

Page

This Notebook contains info on projects

CO-20

P. 28- 97

From Page No.

10/6 Autopack prep on 31-40
AutopackAutopack prep 1/3 72.350 - PBS
& prep vials C 31-40

Quartz

Chi 12.102

210 min 13.00

0.918 11-1010 22.12

31-40 2.38

14 55.91

15 31.35

17 31.96

18 42.59

19 48.30

20 66.44

22 52.25

23 43.68

24 37.06

25 41.71

26 44.83

27 48.51

28 57.57

29 58.23

30 12.35

41-1010 31.81

10/6 Cuvette prep for 31-40

30ml 2x RT 9.25

30ml TET

3ml 100 u/l

vials + glass C 37°C after 8.903

Chlor 50 ml 224.000 8.718

all 30ml in 31-40 + glass vials

TET 15ml tubes

all 5 ml RT from 31-40 above

+ New Chi

41-1010

Price 44.5

10/7 Set 3 Quartz plates

Dial 340 + 13/2 1.2 (1.0) = 1.340 5 dial

Chi 50ml 6.000 = 115.000 (12.2/100) 12.200 = 1.1800

$$\frac{1.340}{1.1800} = 1.12 \quad (1.0/18.0) \times 100 \quad 49.48 \text{ % visibility}$$

Set 3 Quartz plates

1 ml Carbamate buffer + 3.92 ml vials off all
top of 3 quartz plate sets @ 40C open

To Page No.

Witnessed & Understood by me.

Date

Entered by

Justine M. Marshall

Date

Recorded by

10/9/02

From Page No.

10/10 Printed 15 ml peris for #31-40
Dil 2 Lanthanum & 3 Ananta

Ananta Lanthanum dilution regimen - to get about 1 ml conc 32

Dil 25.00 mg/ml 1/6333

10/10 61-1010 59.02

62-915 17.85

30-411 89.05

31-612 59.44

32-612 44.51

33-91 78.48

34-61 71.75

35-131 76.96

36-91 110.20

24.51

7.425

44.535

24.73

22.355

37.24

35.375

35.43

5.10

37-08 75.12 mg/ml

36-81 75.77 mg/ml

37-94 68.42 mg/ml

Dil 25.00 mg/ml

30-01 40.02 mg/ml

30-01 115.28 mg/ml

Printing of Data to Fixed Range Cells 10-10-83

Page 32

Legend of Data to Fixed Range Cells 10-10-83

1. 10-1010

2. 10-9000

3. 10-0000

4. 10-000

5. 10-00

6. 10-0

7. 10-00000

8. 10-0000

9. 10-000

10. 10-00

11. 10-0

Printing
Page 32

Legend of Data to Fixed Range Cells 10-10-83

1. 10-1010

2. 10-9000

3. 10-0000

4. 10-000

5. 10-00

6. 10-0

7. 10-00000

8. 10-0000

9. 10-000

10. 10-00

11. 10-0

To Page No.

10/10 is slightly above this in
all these graphs (diluted and peris
in yellow) - created - printed
out new graphs

#32, 33, 35 & 40 with the
best as will investigate the
further

Witnessed & Understood by me,

Date

Initialed by
Christopher H. Webster
Recorded by

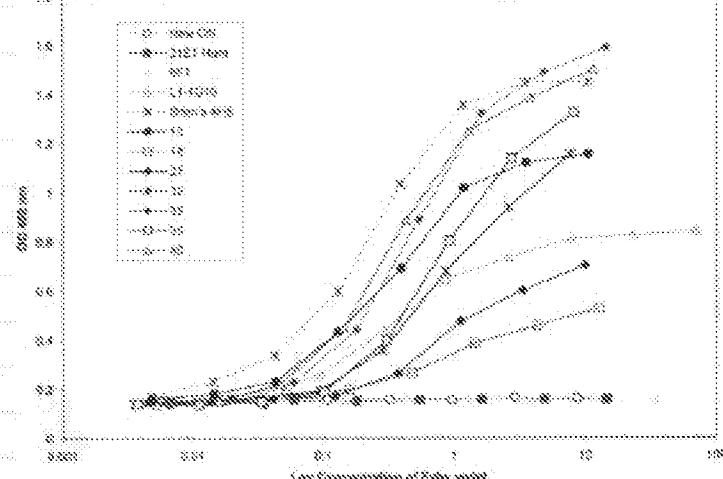
Date

10-10-02

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Marked for
C. C. 2

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Rhine, George, Birn 4115 was
well as ~~the~~ ²³ ~~the~~ staying on
pretty well

— Opus 1, #1421814

—16— One year of the most

~~27.10.00~~
= 2.9 + 10.0 ~~same day~~ ~~same~~ ~~date~~

10/17 Kellie 9461 D1013 65mN 84deg/100

template $\sim 90\%$ losses $\times \$330 = 2,970$, or a M
slips 37 losses $\times \$330 = 12,210$, M

$2,970,000 / 13,870 = 230.77$ or $231 \frac{1}{4}$ in

$90\pi/33 \approx 270^\circ$ too much if heavy such

Wm Targette	Henry	Henry	Henry	Henry	Henry	Henry
31 days	Henry	Henry	8 days	7 days	7 days	5 days
too small	2300's Tax	2300's	10.8% 10.8%	10.8% 10.8%	10.8% 10.8%	10.8% 10.8% about 10.8%

Conc. Drug-free \Rightarrow 67 mg/L \Rightarrow 1.66 mg/L of drug
84.1 mg/L \Rightarrow 1.66 mg/L of drug

2 x 10⁶ phagocytotes/μl 20 x 10⁶
10 μg ATP 418 μM 16, 0 37°C
1662 days 1996
1989 - 2000 1000

To Pages 100.

Written & Understood by me.

10

Designed by
Christie M. Howell
Recorded by

2000

1000000000

NOTEBOOK NO. 6/3
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ON 9/17/02 2002
DEPARTMENT _____
RETURNED 20

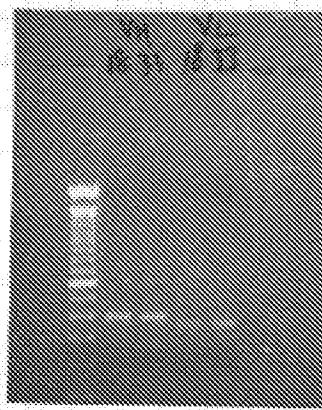
SCIENTIFIC NOTEBOOK COMPANY
2831 LAWRENCE AVENUE
STEVENSVILLE, MICHIGAN 49127
(800) 637-3828 ~ <http://www.sntco.com>

From Page No.

1. get PCR product from YT
 ~100 µl / sample

VH 18
 33

VL 18
 33



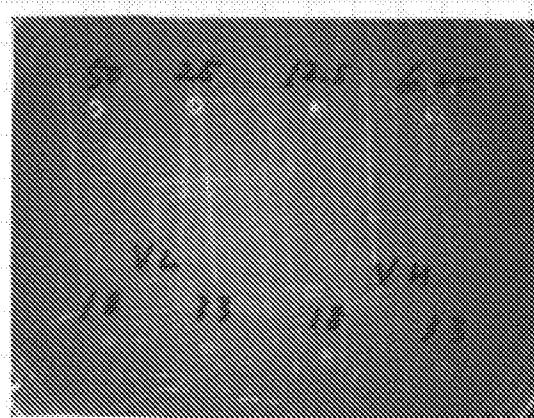
2. PCR product purification

- 500 µl buf 1 (binding buf)
- to PCR product → column
- + 500 µl buf 2 (washing buf) 12
- + 200 µl "
- + 50 µl buf 3 (elute buf) 12
- then + 100 µl dH₂O

3. to each sample:

- 150 µl of Magnetic beads + 400 µl 2xRQW buf — wash x 2
 reuspend in 200 µl RQW buf
- ready + 200 µl gently shaking (15')
- wash beads w/ 2xRQW buf x 4
- elute DNA in 300 µl of 0.1M NaOAc, gently shaking 10'
- take out, 7' to remove residual beads
- + 1 µl glycogen
- 300 µl 3M NaOAc (pH 5.2) / -20°C — 30'
- 500 µl 100% EtOH
- 7% EtOH wash, air dry, dissolve in 15 µl dH₂O

keep at -20°C (11 repre.)



To Page No.

Witnessed & Understood by me.

Carolyn Ho

Date

6.1.03

Entered by

Initials

Recorded by

Yang Nie

Initials